THE SECRETS OF AGRICULTURAL GROWTH: QUALITY OR QUANTITY?

An Undergraduate Research Scholars Thesis

by

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ABSTRACT

The Agrarian Origins of Economic Growth in Currently Wealthy Nations

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This research project is an effort to understand the process of late economic development by studying national differences in economic growth between 1870 and 1950. While traditional theories of economic development have attributed growth to industrialization, manufacturing, military spending, and other factors, we take a different approach by examining the crucial role that agriculture has played in the economic development of currently wealthy nations, such as the U.S. Specifically, unlike previous arguments that have emphasized one-nation domination of production by creating products of superior quality to be traded, we argue instead for a more egalitarian alternative that does not require food to be traded, or that nations have a big share of total world production. Using historical cookbook ratings on national ingredient quality, we tested the quality argument and found that there was no correlation between agricultural excellence and quality ratings. Furthermore, by analyzing world production and export data, we found that most exported products that were linked to successful economic development were non-traded rather than traded. In conclusion, our analysis supports the quantity argument, which indicates that economic growth can occur by increasing the volume of production without monopoly of a particular product.

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CHAPTER I

INTRODUCTION

Traditional theories on economic development

Over the years, economic development theorists, along with other scholars, have debated the best method for promoting the successful economic growth of a nation, which is essential in raising national GDP and, therefore reducing global poverty. Traditional theories on the process of late economic development often focus on, and emphasize GDP growth rates, military spending, and industrialization and manufacturing as the main determinants of successful economic growth of a nation (Giang Dang and Low Sui Pheng 2015). American macrosociology, in particular, has frequently attributed the successful late economic development of currently wealthy nations to social policies that were enacted in the twentieth century when these growth rates can be traced back to institutions that were in place hundreds of years before. In addition, classical underdevelopment theory has argued that, through the process of unequal terms of trade, early industrialization in some nations has resulted in a disadvantage for other nations that began industrialization later on.

Samir Amin (1977) and Raúl Prebisch (1950) argued that agricultural producers are particularly disadvantaged because, in contrast to manufacturers, commodity producers have no proprietary technology that allows them to charge monopoly rent for their products, and therefore, have to sell their products in big, competitive markets. This monopolist trading with producers in competitive markets, according to Amin and Prebisch, results in the steady transfer of resources from the poor nations to the rich ones. Underdevelopment theorists have also argued that this

economic disadvantage for poor nations is further amplified by the use of military force to stop nationalist development initiatives (Gunder Frank 1967). According to underdevelopment theorists, the key, therefore, to successful economic growth, is to create state-based interventions that protect weaker countries from the market. Some of these state-based interventions include creating tariff protection (Chang 2008) and forcibly stimulating heavy industrialization (Barrington Moore 1966).

The role of agriculture in promoting economic growth

A great deal of American macrosociology and traditional theories of economic development have ignored the role of agriculture in the economic development of currently wealthy nations, such as the United States, Britain, and Canada. The importance of agriculture to the development of wealthy nations has been shown in Harold Innis' Canadian staples theory (1930, 1956), Dieter Senghaas' social democratic theory (1985), and Monica Prasad's recent work on American agriculture (2012). According to Innis, Canada's breakthrough economic growth, along with the growth of the United States, Australia, and other capitalist nations, can be traced almost entirely back to the development of successful agricultural sectors. Senghaas additionally argues that land equality is a key component in creating sustainable agricultural export sectors, because nations with land equality had prosperous, educated farmers that typically worked together to create new technological innovations that increased product quality. In addition, Prasad demonstrated in her recent work that American economic growth in the late nineteenth century can be traced back to American agriculture, specifically to the influx of the world's cereal market with cheap grain exports by the U.S and Canada from 1870-1914.

Previous literature in favor of quality

Among those in support of agricultural export sectors as a means of producing successful economic growth, there remains a debate as to the best way of achieving this growth. In this debate, scholars argue that quality agriculture is the crucial element in achieving long-term, consistent economic growth. According to the quality argument, success in the agricultural export sector is a result of maintaining dominance in the world market by producing agricultural products of superior quality that can be traded, and which no other nation can compete with. In this winner-take-all system, only a few, elite nations that have the means of producing superior quality products can achieve successful economic growth, while every other nation is reduced to poverty. Supporters of this argument include Samir Amin, as mentioned above, and Alice Amsden. Amin argues that growth is a result of creating products of superior quality, and having monopoly rent on these products, while Amsden argues that the key to successful economic growth involves using the most advanced technology and knowledge-based assets

Quantity argument as a more egalitarian alternative

In direct contrast to the quality argument, which states that growth is a result of producing monopoly rents that create substantial inequality, we argue instead that economic growth can occur through a more egalitarian alternative. In this alternative, economic growth can be produced by increasing the volume of production without monopoly. This allows a nation to achieve wealth without creating social inequality by dominating world production. In this system, not only is there is easy access that makes it possible for all nations to participate in production, but there is also a more egalitarian income distribution, in which profits are shared across nations and is not a result of monopoly rent.

CHAPTER II

METHODS

Sample selection

In our research, we plan to analyze and study both the quality and quantity argument in order to see which is more supported by findings. In selecting our sample, we focused specifically on the time period between 1870 and 1950, because it was during this time that many nations experienced growth that was significantly less, or more than what would have been expected based on their previous rates of economic development. Furthermore, it was also during this time period that the present day division of nations into core, semi-periphery, and periphery became crystallized. Aside from the selection of these specific years for our analysis, our sample also only included nations with which we were able to obtain specific export data on volume production from the three volumes of Mitchell's *International Historical Statistics* (2007).

Measurements

In order to successfully conduct our analysis, we first measured quality by indications of ingredient quality ratings found in historical cookbooks, and then measured quantity by export volume data. More specifically, for the measurement of quality, we first gathered a list of prominent cookbooks that were published in England between the years 1870 to 1950. (We focused our analysis on cookbooks that were published in England because they typically included many more references to the quality of foreign ingredients. We believe that this is because England imported a much larger percentage of their food supply in comparison to other nations). Once we had obtained our collection of cookbooks, we read through each one in search

for references to the quality of ingredients from other nations. We ranked these references on a scale from A - G. On our scale, A corresponded to superior quality, B to relative superior quality, C to generally good, D to average/usable, E to generally bad, F to relative inferior, and G to inferior/subpar/adulterated quality. After producing quality rankings for various products, we then compiled this data in an excel spreadsheet and sorted the spreadsheet by each individual product. This allowed us to compare ingredient quality ratings across various nations on a larger, and more informative scale and provided us with a view of differences in quality between nations.

After measuring for quality using historical cookbooks, we then proceeded to measure quantity by export volume data. Using the three volumes of Mitchell's International Historical Statistics (2007), we first identified exported crops that were linked to successful economic development. These included wheat, fish, butter, wool, cotton, and meat. Then, for each of these products, we created an excel spreadsheet table that consisted of the raw yearly data of exports and production by various nations. We then used the computing techniques of zero bracketing and interpolation in order to account for missing data in our yearly figures. After introducing these computing techniques into our data, we later calculated the percentage of each product that was exported, in comparison to those that were not exported, or non-traded. Lastly, using these percentages, we created pie graphs for each product to clearly depict how each nation's export volume compared with other nations and with total world production.

CHAPTER III

FINDINGS

The world production statistics that were generated are strong evidence that the majority of agricultural products produced in the world between the years 1870 and 1950 were not traded. After comparing the total volume of various products that were produced in the world, and the total volume of those same products that were traded, we found that most food was grown and consumed locally. We then proceeded to graph the relative percentages of these non-traded and traded goods for different products in the years 1890, 1910, and 1930. These years provide a cross section view of the length of time contained in our study. In addition, we constructed graphs for several different types of products to provide a larger view of these results. The charts below show how much of a certain ingredient is traded versus non-traded for a certain year. These charts were constructed for fish in 1910, meat in 1890, wheat in 1890, butter in 1910, wool in 1910, cotton in 1910, and meat in 1930.

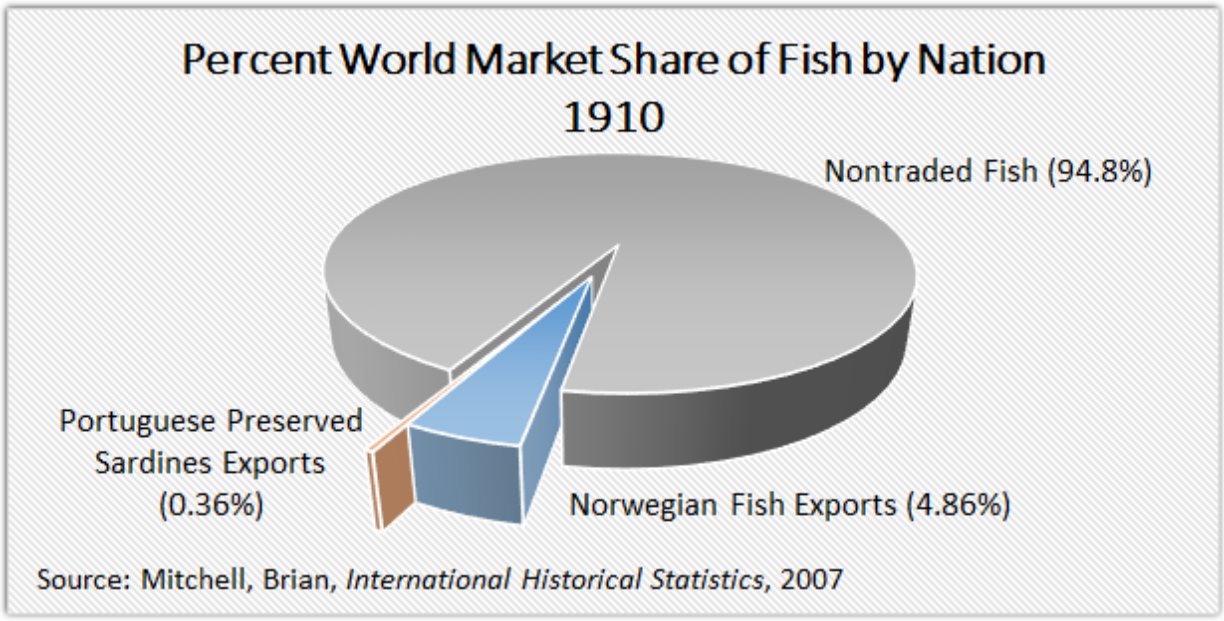

Figure 1: Percent World Market Share of Fish by Nation, 1910

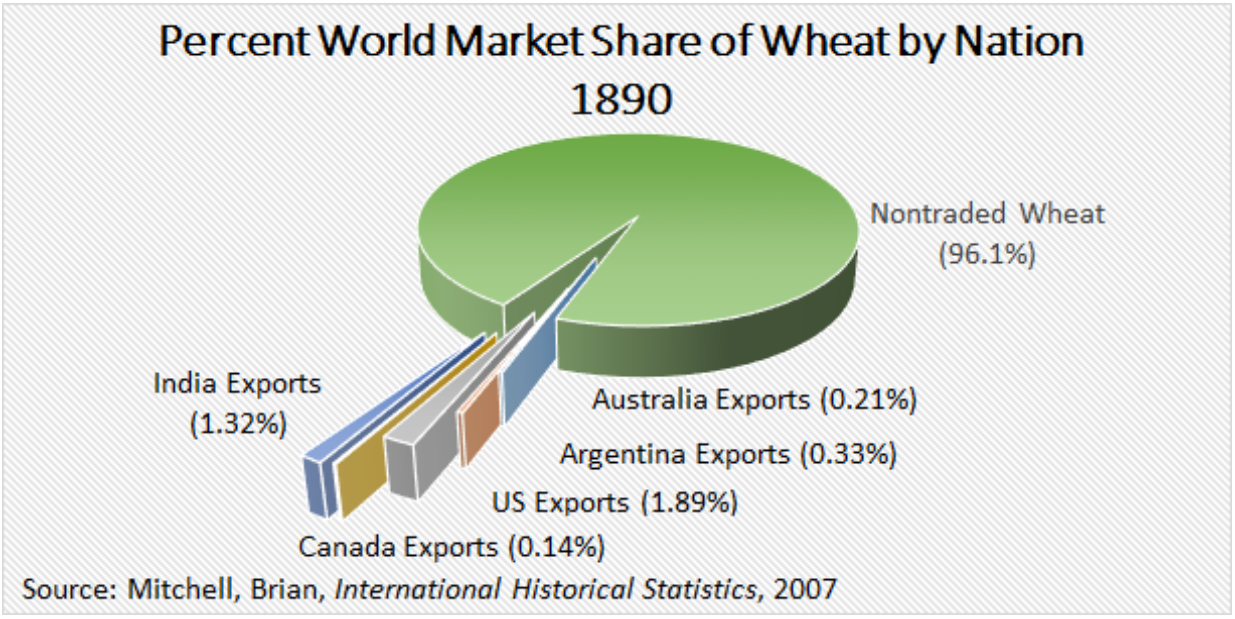

Figure 2: Percent World Market Share of Wheat by Nation, 1890

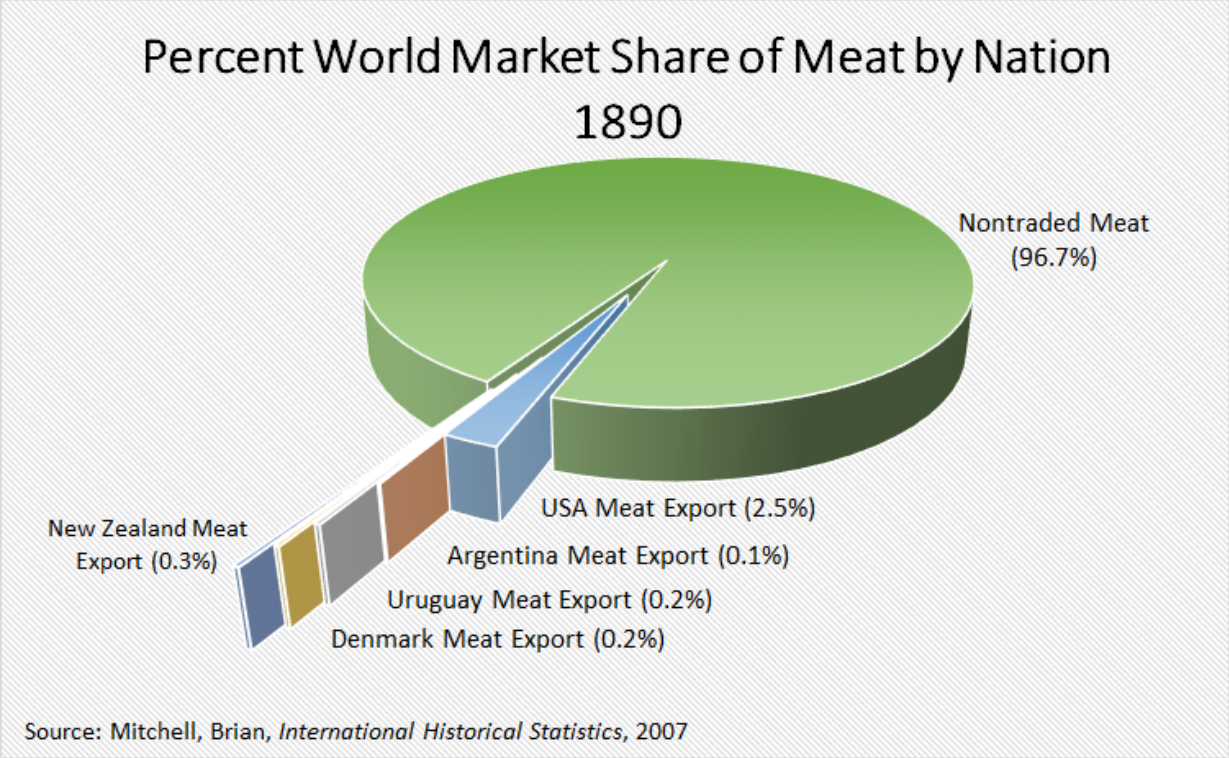

Figure 3: Percent World Market Share of Meat by Nation, 1890

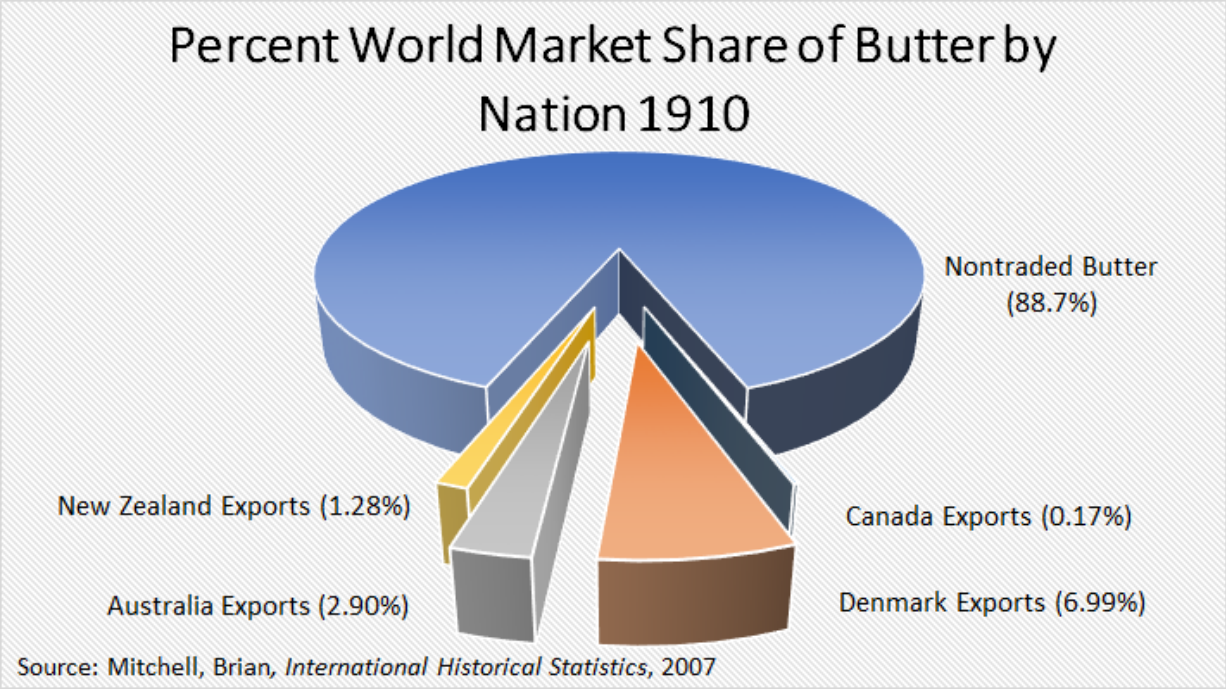

Figure 4: Percent World Market Share of Butter by Nation, 1910

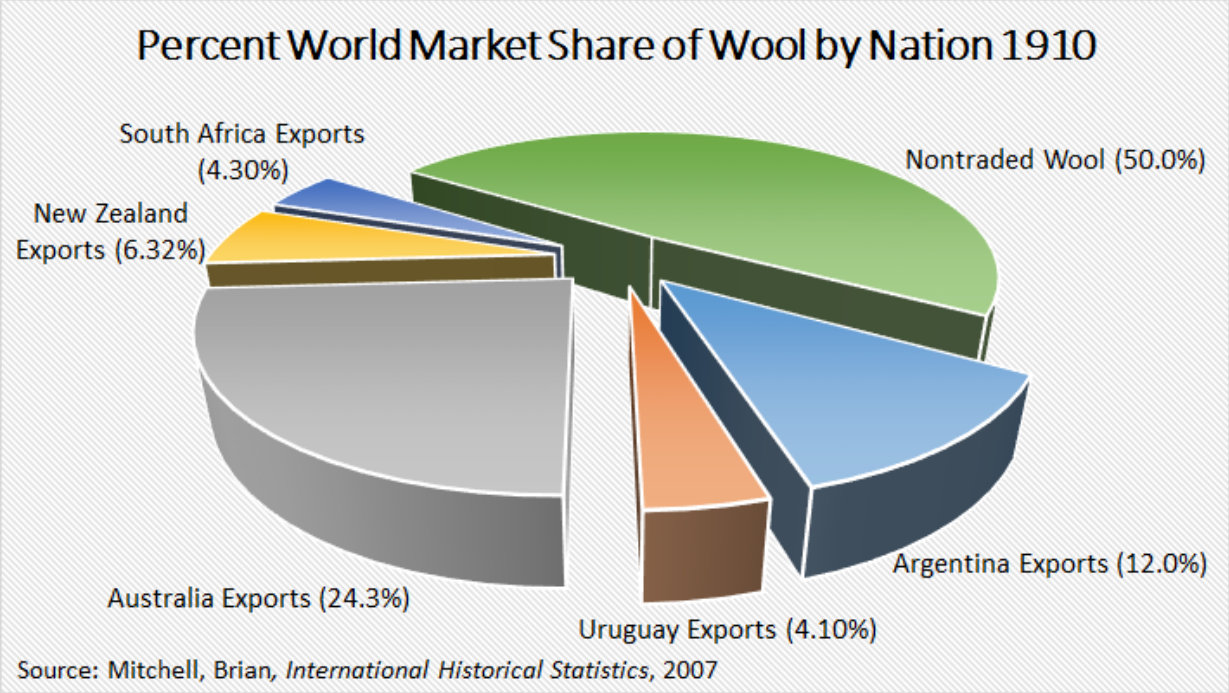

Figure 5: Percent World Market Share of Wool by Nation, 1910

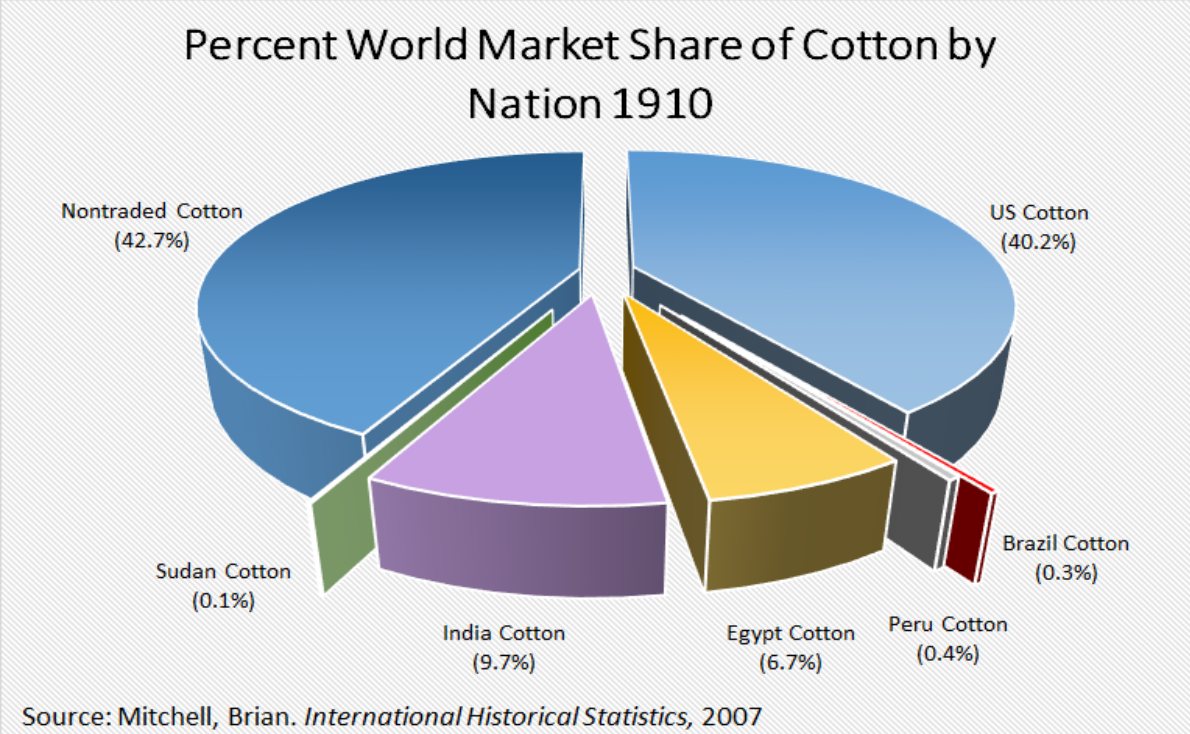

Figure 6: Percent World Market Share of Cotton by Nation, 1910

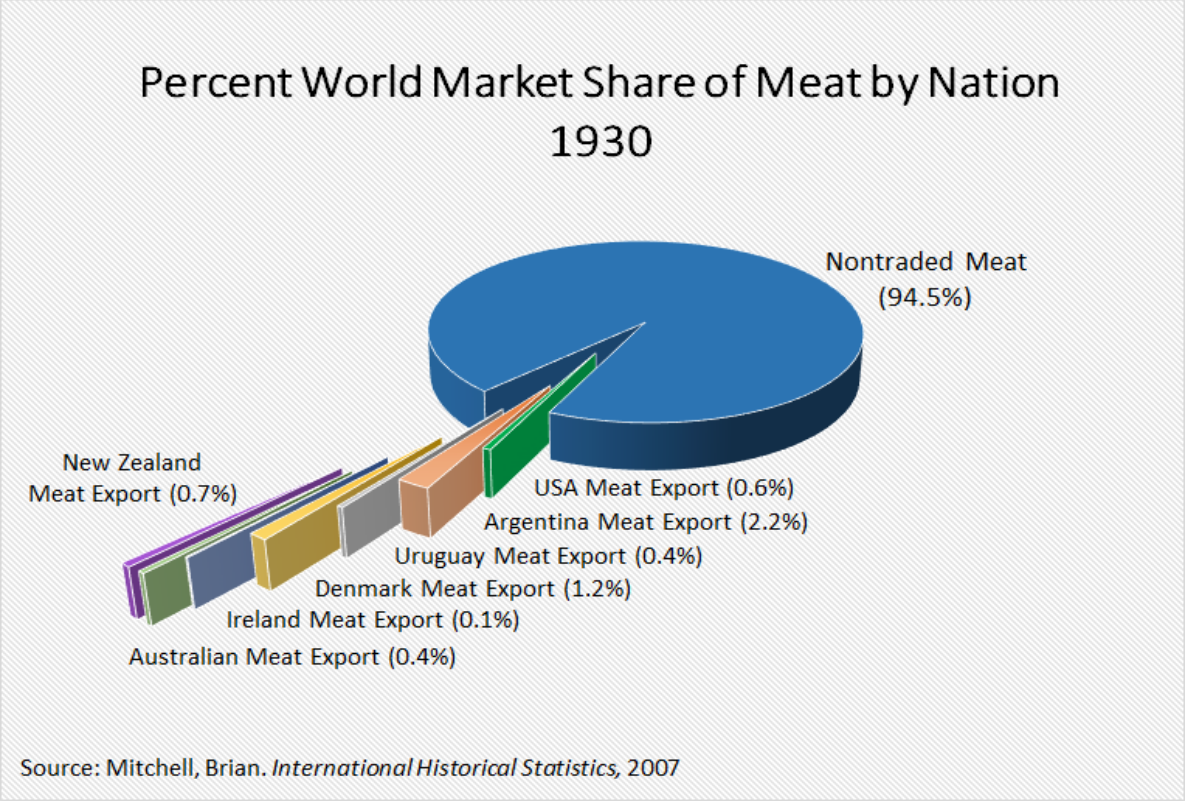

Figure 7: Percent World Market Share of Meat by Nation, 1930

As a result of the significant amount of food that was non-traded and consumed locally, few people during these times had knowledge about the food available in foreign countries. Since no one had access to foods from other countries, cookbook authors had little reason to include discussions on the differences in ingredient quality between various nations. As a result, we found very little information that was useful to us in our analysis of cookbooks. Furthermore, even when authors did seem knowledgeable about the quality of ingredients in foreign nations, they were rarely insistent on the use of certain ingredients over others. A natural explanation for this is that almost everyone has the ability to grow or produce a product that is "good enough". In fact, any small differences in quality are most likely offset by the fact that locally sourced food is much fresher.

CHAPTER IV

IMPLICATIONS

Throughout all of the relevant agricultural products and years in our study, there were no monopolies established by any nation. This means that even if a country had the highest quality products, they would almost never gain a large share of the total world market. For example, despite Denmark being known for the quality of its dairy products, they were only able to establish a 6.99% share of the world market of butter in 1910. Furthermore, the fact that the majority of agricultural products that were linked to successful economic growth were non-traded means that successful exports was not a result of monopolizing a particular product. Yet despite the fact that no nations established a monopoly, many still experienced significant and transformative economic growth. One prominent example of this is Norway, whose most important agricultural export, fish, was only able to establish 4.86% of the world market in 1910. The fact that many nations were able to experience this growth without establishing a monopoly discredits the theories of both Samir Amin, Alice Amsden, and other scholars who argue that growth is a result of monopoly rents, high technology and knowledge-based assets. In contrast these theories, our findings did not show any significant hierarchies in quality, and certainly not any that made a significant difference in economic growth.

CHAPTER V

CONCLUSION

During the time period between 1870 and 1950, several nations experienced dramatically more or less than the growth rates that would have been expected solely based on previous economic development. This transformative development later became significant in the crystallization and division of nations into core, periphery, and semi-periphery. While previous theories and research have attributed this development to other factors such as industrialization, manufacturing, and military spending, we examined the role of agricultural exports in the late development of these nations. More specifically, we analyzed the quality versus quantity arguments. While the quality argument requires that most food should be traded, and emphasizes one-nation domination of production, the quantity argument provides a more egalitarian alternative that allows nations to have a big share of total world production, and does not require food to be traded. In order to test the quality argument, we gathered a list of historical cookbooks published between 1870 and 1950, and ranked nations based on ingredient quality. From our rankings, we found that most cookbooks did not rate nations based on ingredient quality, because cookbook writers preferred fresh and local ingredients, and a majority of the food supply was local.

In order to test our quantity argument, we examined and analyzed export data of various agricultural products of different nations, using Mitchell's International Historical Statistics. From our analysis, we found that the majority of agricultural products that were linked to successful economic growth were non-traded. This indicates that, in congruence with the

quantity argument, economic growth can occur by increasing the volume of production, and successful exports is not a result of monopolizing a particular product.

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